A Brighter Future for a Bird of the Night

(Photo By Dan Thompson.)

A new recovery plan and conservation program raise hopes for the barn owl in Illinois.

Story By Jeff Walk, Anne Mankowski, Terry Esker, Mark Alessi, Maggie Cole

It's dusk over the open meadow, and a pale, ghostlike apparition is floating over the grass, silent on buoyant wings. In an instant, the figure J-hooks, folds its broad wings and plunges to the ground. Somewhere on the prairie, a meadow vole must have been very unlucky, because within a minute, eerie hissing and twittering sounds start rising in intensity from the wooden box up in the barn rafters. It's breakfast time and the hungry young barn owls are jockeying for position as their father brings in the first vole of the evening. By dawn, it is a chore he and his mate will have completed a dozen or more times to feed their five growing young.

Barn owls (*Tyto alba*), with their whitish plumage and distinctive heart-shaped facial ruffs, have a striking appearance. They are one of nature's most effective predators: They have excellent low-light vision, their flight is silent to human ears, and their acute hearing allows them to capture prey in total darkness. And barn owls consume a lot of voles and other mid-sized prey, including rats and mice, to fuel their full-throttle lifestyle.

Unlike most other owls, which are slow to mature, tend to be long-lived,

The goal of the Illinois barn owl recovery plan is to upgrade this bird from endangered to threatened—to recovered.

(Photo by Dan Kirk.)

In addition to natural cavities, barn owls nest in barns, grain bins and other human-structures.

and only raise a few young each year, barn owls can begin breeding when they are as young as 8 months, often raise four to seven young in one brood, and sometimes nest two or more times in a year when prey are plentiful. While late spring-early summer is the peak of nesting activity, incubation and brood-rearing can occur during any month of the year in Illinois. One pair in Marion County hatched five clutches and fledged 15 young in a marathon of non-stop nesting lasting 23 months. The flip side of living fast is dying young, and most barn owls don't survive until their second birthday in the wild. Fewer than 20 percent of adult barn owls will survive more than a single nesting season.

Besides a good supply of rodents and secure nesting sites, barn owls don't need a lot to thrive. Barn owls are not well-suited to cold temperatures, and they are less effective hunting in heavily wooded areas, so they are found in a variety of open habitats in tropical and temperate zones around the world. The Illinois-Wisconsin state line is roughly as far north as barn owls can survive through the winter.

What should I do if I find a barn owl nest or injured barn owl? It happens every year: A thunderstorm knocks down a hollow part of a silver maple in someone's yard, or an idled grain bin is being cleaned out, and suddenly young barn owls are on the ground, scrambling for safety. Some are fully feathered, others are smaller and much less developed. What to do? Resist the temptation to intervene, and only move birds if they are in immediate danger, moving them only as far as is absolutely necessary.

Contact a DNR biologist to help resolve the situation (www.dnr.state.il.us/conservation/naturalheritage/sstaff.htm); in addition to being endangered in Illinois, barn owls are federally protected like other birds, and having them in possession without permits is illegal. Only injured birds should be taken to a wildlife rehabilitator, as released birds have lower survival than wild birds. Remaining in the care of their parents in the wild is a young barn owl's best chance for surviving. Young barn owls in a nest vary in age by up to 2 weeks, so smaller, less developed birds are normal, and not a sign of disease or malnourishment. Young barn owls can be placed into a nearby secure nest box, and their parents will find them and resume caring and feeding for them. The adults may also try re-nesting in the nest box.

Barn owls are highly adaptable to potential nest sites. True to their name, barns, grain bins, silos, belfries, nest boxes and a variety of other human structures all may be used for nesting, in addition to natural nest sites, such as tree cavities and dens on cliffs and bluffs. Because young owls often disperse hundreds of miles in search of their own mates and nesting areas after leaving the nest, barn owls can readily colonize areas far from other known barn owl populations. Given their wide distribution and tolerance of human activity, and tendency to nest in barns and other structures, barn owls are likely the most familiar owl in the world.

In spite of this versatility, barn owls are rare in the Midwest and endangered in Illinois. Population declines since the 1920s are best correlated with changing agricultural practices, particularly the shift from small-field diversified farming practices, including perennial grasslands for haying and grazing, to large-field annual row cropping, which reduced the abundance of small mammals across large portions of the landscape. Voles—short-tailed, stocky balls of brown fur about the size of a chicken egg—are the preferred prey of barn owls in the Midwest, and are much more abundant in hay, pasture, prairie remnants, roadsides and other perennial grasslands than in cropland.

From 1950 to 2007, the area devoted to hay and pasture in Illinois decreased by more than 5 million acres, whereas corn and soybean acreage increased by 9 million acres. These land-use changes correlate with the declining populations of many types of farmland wildlife, including pheasants, quail, rabbits and many grassland-nesting birds. The same types of land-use changes—

Barn owls feed at night on voles and similar-sized prey.

(Photo by Dan Kirk.)

and downward barn owl population trends—have been reported from Europe. Barn owl conservation has been widely attempted, with mixed success. Nest boxes installed for barn owls are readily adopted, and in some areas have led to population increases where adequate prey are available. Releases of captive-reared barn owls, on the other hand, have not produced clear benefits to wild populations in spite of being repeatedly attempted.

Although barn owls are rare in Illinois, they remain broadly distributed. Over the past 20 years (1990-2009), barn owl nesting has been reported from 31 counties, mostly in the southern half of the state (see Figure 1). Barn owl populations are secure in Mississippi River Valley states south of Illinois, and populations in some Midwestern states, including Missouri and Ohio, appear to be expanding. In Illinois, the establishment of about 800,000 acres of new grasslands through the Conservation Reserve Program beginning in the late 1980s probably created improved foraging habitat for barn owls, and may be contributing to the apparent increase in barn owl reports since 1990. Counties in southern and south-central Illinois, where many of the recent barn owl nest records are located, have large areas

(Photos by Terry Esker.)

Barn owl populations have increased in some areas where nest boxes have been installed.

enrolled in the Conservation Reserve Program (see Figure 2).

Over the past few decades, Department of Natural Resources biologists and others have occasionally put up barn owl nest boxes, most of which have not been regularly monitored. Many of the barn owl nests that are reported are found under haphazard, often unfortunate, situations, such as a tree with a nest cavity being knocked down by a storm, or a nest in an old structure revealed during demolition. With the support of a State Wildlife Grant (T-35-P-1) from the U.S. Fish & Wildlife Service, DNR and the Illinois Endangered Species Protection Board formed a team in 2009 to develop and implement a recovery program so that barn owls no longer need to be listed as threatened or endangered in Illinois.

In 2010, the team solicited reports of barn owls, searched databases and other reports, revisited sites with past barn owl nesting activity, and checked several nest boxes that had been in place for years. The results were pleasantly surprising: at least 19 barn owl nests in 16 counties (see Figure 1)—nearly as many nests as reported through all of the past decade. Many of the nest boxes which had been put into place years earlier were still in good condition. Other damaged nest boxes were replaced, and 45 new nest boxes installed.

The Illinois barn owl recovery plan, approved by DNR and the Endangered Species Protection Board in November

Figure 1: Reported barn owl nesting

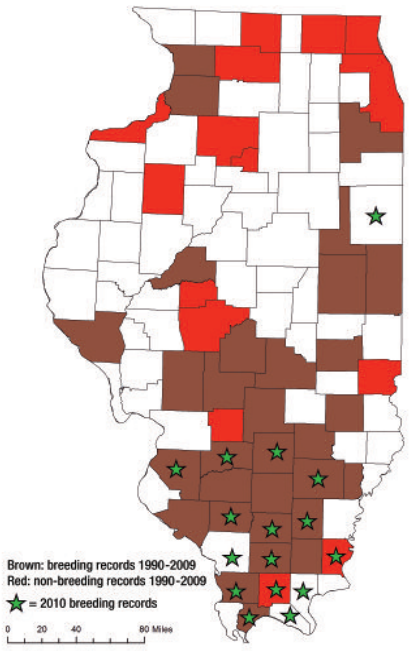
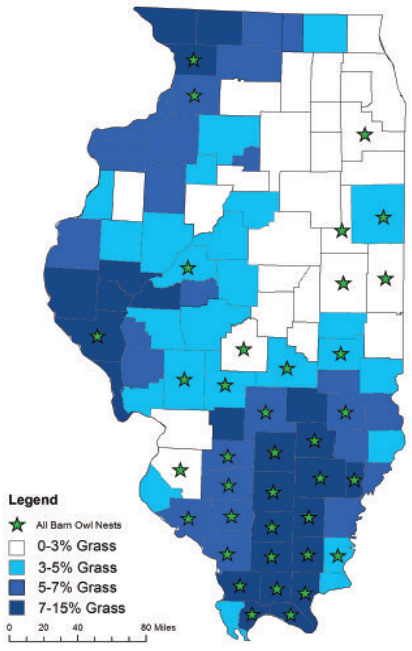


Figure 2: CRP acreages relative to reported barn owl nesting



Barn owl sightings should be reported to your district heritage biologist (county list available at www.dnr.state.il.us/conservation/naturalheritage/sstaff.htm).

2010 (available on the "Publications" link at www.dnr.state.il.us/espb/index/htm), set a goal of 40 active nest sites, distributed among at least 15 counties within in a 5-year period, to consider an upgrade in status from endangered to threatened. Doubling those marks (80 nests in 30 counties) would mean barn owls probably are recovered in the state. With the encouraging results from the 2010 field season, we are well on our way toward those objectives, but reaching them will take a sustained effort.

The easiest, most effective and cost-efficient action people can take to help barn owls is deploying and monitoring nest boxes within suitable nesting areas. Barn owls readily adopt nest boxes of various designs, and barn owl nests in boxes tend to be more productive than nests in natural cavities. Because nest boxes can be easily monitored—and barn owl nests in other situations are difficult to locate—monitoring nest boxes is the only practical way for assessing the status and trend of local barn owl populations. While barn owls can show up almost anywhere in Illinois, nest boxes that are close to grassland hunting areas and farther south in Illinois are more likely to be used.

Barn owls have nested at some grassland conservation areas, including Prairie Ridge State Natural Area (Jasper and Marion counties) and Pyramid State Park (Perry County). Expanding grassland sites and creating additional sites dedicated to conserving grassland wildlife are likely to benefit barn owls and other rare and declining species.

Grassland wildlife are among the most imperiled in the state, making the need for dedicated grassland conservation areas particularly acute. Other ways of encouraging land-use practices that support populations of voles and other small mammals will ultimately benefit barn owls as well. Perennial grassy habitats, such as hay fields, pastures, wet meadows and Conservation Reserve Program grasslands, all support greater populations of small mammals, especially voles, than do row crops. Several grassland focus areas eligible for the State Acres for Wildlife Enhancement Program, an extension of the Conservation Reserve Program, are current opportunities to establish grassland foraging habitat for barn owls in landscapes well-suited to other grassland wildlife. There are recent barn owl nest records in or near all the SAFE-eligible areas in the Southern Till Plain natural division in south-central Illinois.

As shown by the results of the 2010 surveys, barn owls probably occur more often in Illinois than records indicate, so the public is encouraged to report barn owls to help monitor their true distribution in Illinois. The cooperation of private landowners will be essential for putting up and monitoring more nest boxes, and improving grassland habitat. Nest-box monitoring and reporting could be conducted by volunteer groups, such as 4-H clubs, scout troops, Future Farmers of America chapters and Audubon Society chapters.

Clearly, getting the word out about barn owls, and what you can do to help, enhances the chances of a full recovery.

(Photo by Carol Freeman.)

You can help with the recovery of the barn owl by reporting sightings.

How and where should I put up a nest box? Barn owls are not too picky about the style of their nest box. We've seen them nesting in garbage cans and children's play houses. Nest trays suspended from the rafters of a barn or interior of a bin or silo can be effective. In open spaces without a nearby tree or structure for a nest box or tray, boxes mounted on a free-standing pole are another option.

Anything with about 2-3 square feet of interior space is adequate. Consider the safety of the young before and after leaving the nest when placing a nest box. As examples, a nest box opening directly to a barn's exterior and surrounded by aluminum flashing will help keep raccoons out of the box, and a predator guard on a pole-mounted nest box is a good idea. Although barn owls can be surprisingly tolerant of activity, placing nest boxes away from heavy traffic areas, augers and other machinery, and stored chemicals will reduce risks to young birds as they start venturing from the nest.

Adult barn owls do most of their hunting within a mile of their nest site. If a third or more of that area is prey-rich hunting areas, such as hayfields, pastures, CRP grasslands, marshes, orchards and vineyards, conditions probably are excellent for barn owls.

There's not much you can do about where your property is in the state, but it's a simple reality that farther northward, cold temperatures and snow cover limit barn owl survival. Although barn owls recently have nested as far north as Carroll, Whiteside and Will counties, nest boxes in the southern half of the state have better odds of hosting barn owls.

The authors serve on the barn owl recovery team. Jeff Walk is the director of science for The Nature Conservancy in Illinois, Anne Mankowski is the director of the Illinois Endangered Species Protection Board, Terry Esker is the DNR district natural heritage biologist based in Newton, Mark Alessi is a human dimensions specialist with the Illinois Natural History Survey and Maggie Cole is the DNR Region 2 natural heritage administrator.